A recent enquiry to Singapore found Mr. Gibson-Hill away on leave, but a letter from the Museum Director informs me that the Aagaard's Nakon Sritamarat Mountains (Peninsular Siam) specimen of 18 ft. 4 inches, which is quoted by Malcolm Smith (Fauna of British India, Serpentes, 1943, p. 438.) may be accepted as the world's record for the Hamadryad.

The Director's letter mentions that quite recently a big hamadryad was killed on Singapore Island and brought to the Museum. It was 15 ft. 7 inches long and weighted 26½ lbs. It was very stout, so contrasts remarkably with Ditmar's ('Snakes of the World') record of 16 lbs. for a specimen of 15 ft., which, however, had been in captivity. That would account for the contrast in weight. A plaster mould has been made of this recent Singapore specimen.

BANGALORE,
1st August, 1950.

R. W. BURTON,
Lt.-Col. I.A. (Retd.)

21. BREEDING OF THE GOURAMI [*OSPHRONEMUS GORAMY* (LACEPEDE)] IN INDIAN RIVERS[1]

The Gourami is considered to be one of the best freshwater table-fish in the world. It is extensively cultured in Java and the other islands in the Malay Archipelago, from where it has been taken to Europe, Australia, Philippines and Ceylon. It was first imported to Madras from Mauritius in 1866 by Dr. Francis Day, and cultivated in the Government House ponds at Guindy and Madras and also stocked in the waters in and around Madras City. But as most of the stock was depleted by 1915, a fresh consignment was brought from Java by Mr. H. C. Wilson in 1916. The fish is now largely cultivated in the Government fish farms; and breeders and young ones are being distributed to pond-owners in the province. The fish has also been supplied to other States like Baroda, Bengal, Cochin, Hyderabad, Mysore, Punjab, Rajputana and Travancore, where it is reported to be thriving well.

The bionomics and cultural value of Gourami under Indian conditions have been observed by several workers like Raj[9],[10], Jones[5], Kulkarni[7],[8], Amirthalingam[1], Bhimachar *et al*[2], Spurgeon[12],[13] and Chacko and Venkatraman[3]. Attempts made by the Madras Fisheries Department since 2nd April 1940 by stocking 106 fingerlings in the Mettur Reservoir have succeeded in acclimatising the fish in the Cauvery river system. The fish is now fairly common in the thirty mile stretch of the river between Mettur and Bhavani, breeding in selected pools having macrophytic vegetation. It is also often captured and sold in markets by the local fishermen. Though Gourami inhabits the rivers of other inter-tropical countries, as reported by Willey[15], Weber and Beaufort[14], Jordan[6], Herre and Myers[4] and Smith[17], this is the first instance of successful establishment of the

[1] Communicated with the kind permission of the Director of Fisheries, Madras.

fish in a river in India; and augurs well for the addition of this valuable exotic species to our fluvial fisheries. The Tungabhadra river has recently been stocked with Gourami; and its growth is being watched with interest.

Freshwater Biological Station,
Kilpauk, Madras, P. I. CHACKO
February 1950. A. R. K. ZOBAIRI

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22. FISH AND BAROMETRIC PRESSURE

Mr. E. P. Gee's note on the response of fish to atmospheric conditions reminds me of an incident that left us puzzled and surprised and to which there appeared to be no reasonable explanation. I am sorry that I have not retained any notes and this is from memory.

We were in a boat at the north end of Powai Lake near Bombay, looking for birds' nests during the monsoon (probably August). When at the entrance of a small weedy lagoon it drizzled slightly and almost immediately a number of big fish started 'turning over' all around us showing only the dorsal fin above the surface of the water, rather like dolphins. In a few minutes, the drizzle stopped and with it the fish. A little later, there were two short drizzles both with the same effect. The rain appeared to 'switch on' these fish which were almost certainly Rohu [*Labeo rohita* (Ham.)]

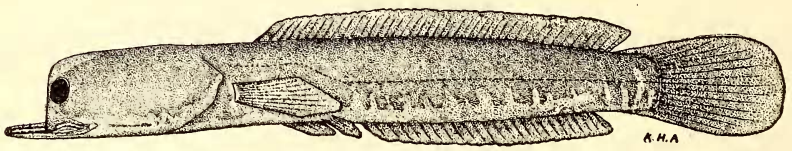
Rohu fry were introduced into Powai in the middle thirties by the late Mr. H. B. Hayes and last year members of the Angling Club caught, along with other fish, 268 Rohu totalling 3,592 lbs. (average 13.4 lbs.), largest 35 lbs.

Faiz & Co.,
75, Abdul Rehman Street, HUMAYUN ABDULALI
Bombay-3.

23. NOTE ON AN ABNORMAL SPECIMEN OF THE MURREL, *OPHICEPHALUS STRIATUS* BLOCH[1].

(*With a text figure*)

While netting one of the ponds in the Chetput Fish Farm, Madras, on 7th August, 1947, an abnormal specimen of Murrel, *Ophicephalus striatus* Bloch., with a curiously deformed upper jaw, was obtained



Abnormal specimen of the murrel, *Ophicephalus striatus* ca. ½; natural size. Slightly diagrammatic; scales not shown.

in the catch. Since existing literature on structural abnormalities in the murrels does not appear to have recorded such a feature, a brief description of it is given below:

The body dimensions detailed below will convey an idea of the anatomic proportions of the abnormal specimen.

Total length from tip of lower jaw to tip of tail ...	... 195 mm.
Length from anterior margin of head to tip of tail	... 184 mm.
Length from hind margin of orbit to hind end of head	... 35 mm.
Length from hind end of head to tip of lower jaw	... 54 mm.
Diameter of the eye	... 9·5 mm.
Width of interorbital space...	... 10 mm.
Height of head (floor of mouth to dorsal aspect of head)	... 19 mm.
Distance between tip of lower jaw and the angle of the jaws	... 23·5 mm.
Vertical range in which the mouth could be opened	... 4–5 mm.

The upper jaw, immediately in front of the level of the eyes, is smoothly truncated and directed vertically downwards to the floor of the mouth to a point almost midway between the angle of the jaws and the tip of the lower jaw. Consequently the lower jaw projects prominently forwards (text fig.). Even if forcibly stretched forwards the tip of the upper jaw would not reach that of the lower. The eyes are situated at the anterior margin of the head, with the nostrils close to the inner margin of each orbit. The lower jaw is provided with several teeth—small near the anterior margin and two long pointed ones on each side. The tongue on the floor of the lower jaw is fully exposed. The effective vertical range of movement of the jaws is limited to 4-5 mm.

The general condition of the fish was observed to be poor and it was infested with lernaeid parasites.

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[1] Published with the kind permission of the Chief Research Officer, Central Inland Fisheries Research Station, Barrackpore.

While the angle of the jaws extends behind the level of the eyes as in the normal specimens, the limited gape of the mouth hampers normal feeding and is mainly responsible for the poor condition of the fish. At the time of netting, the stock of murrels in the pond was only 10 months old and the normal specimens averaged 12 inches in length and about 7 ounzes in weight. The specimen under discussion, though presumably of the same age, was only less than $\frac{2}{3}$ the normal length. The difference in the rate of growth in the same environment, in this particular instance, is attributable to the abnormal condition of the mouth which is an obvious handicap in feeding.

A thorough examination of the mouth parts shows that the abnormality of the upper jaw is not the result of any injury sustained during the late larval life, but is probably due to some abnormal strain that prevailed upon the developing embryo or the early hatchling. It is interesting that despite the handicap in feeding, the specimen survived in the natural pond for about 10 months, amidst its cannibalistic brethren.

In this connection it may be mentioned that the writer observed certain dwarf specimens consisting about 30% of a brood of *Ophicephalus punctatus* Bloch, collected from the Chetput Fish Farm, in 1946. The length of the dwarf specimen was only about half that of the normal fry. The head portion was of normal dimensions, while the trunk was very much abbreviated. Alizarin preparations showed the dwarf specimens also having the same number of vertebrae as the normal fry, but the vertebral centra were very thin. Except for size the dwarf specimens were quite normal and were feeding along with the rest of the brood when they were collected. The causes which might have led to the development of such considerable percentage of abnormal specimens in the particular brood are not clear.

The specimen with the abnormal snout has been preserved in the museum of the Freshwater Biological Research Station, Government Fisheries, Madras. The writer is indebted to Dr. T. J. Job for his valuable suggestions in the preparation of this note.

Central Inland Fisheries Research Station,
Barrackpore, K. H. ALIKUNHI
15*th June*, 1950.

24. OCCURRENCE OF THE FISH *DANIO AEQUIPINNATUS* (McCLELLAND) IN NELA BILAM—AN UNDERGROUND CAVERN IN KURNOOL DISTRICT, SOUTH INDIA

In view of the public interest aroused by an article on 'Nature's Work of Art Underground' by R. K. Golikere published in the *Sunday News of India* dated March 27, 1949, I visited Nela Bilam (Telugu for 'underground cave') in the Kurnool District, South India, on behalf of the Society on 7th October 1949.

The cavern is in the premises of a Siva temple, now in partial ruin, situated in semi-desert country strewn with scrubby vegetation and surrounded by small hillocks all round. The chasm is 200 feet in length and 50 feet in depth in sandstone and limestone. A flight of 203 steps leads to the pool at the bottom, 4 feet in diameter, and 3 feet deep, with a sandy bed and containing clear but slightly brackish water. A stream flows gently into the pool from a northerly direction and continues its course southwards through another hole. There is complete darkness except for a few feet from the entrance. Water is constantly trickling all over the entire cavern forming stalactites containing calcium carbonate—chalk—and quartz.

In the pool I found large numbers of the fish *Danio aequipinnatus* (McClelland) which is not mentioned in the 'Freshwater Fishes of Madras' published by B. Sundara Raj in the *Records of the Indian Museum,* **12**: 249 (1916).

Day's Fauna of British India—Fishes—Vol. I, p. 356 (1889) includes the Deccan in the distribution of this fish. Local enquiries indicate that the water is perennial and though in summer its level goes down, the fish are always present.

In spite of these conditions of life the fish appeared to be quite normal regarding structure and colour. There was no trace of any vegetation in the pool.

114, Apollo Street,
Bombay,
24th August, 1950.

V. K. CHARI,
Asst. Curator.

25. WHERE DO BUTTERFLIES GO?

In sub-tropical regions such as the plains of Assam where there is rarely, if ever, a true hibernating phase in a butterfly's life history, there yet seems to be a period in the year when a common species becomes rare in its usual haunts. The problem of what has happened to them during this period first began to interest me in connection with the various species of *Lycaenopsis,* common here in the cold weather, but of great rarity during the rains.

My collecting territory is the thick evergreen forest and adjacent tea gardens at the foot of the Naga Hills in the Sibsagar District of Upper Assam. Here, though the cold weather (approximately December-February) is well marked, it is not sufficient to prevent the continuous brooded species from hatching out; and an equally important climatic factor is probably the excessive humidity of the rainy months May-October.

The easiest group to assess is that of the cold weather migrants, the two principal ones being *Pieris brassicae* and *P. napi.* These are both mountain species, *P. napi* occurring only as an occasional winter